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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,305	06/06/2002	Gene H MacDonald	5470.276	1963

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EXAMINER	
ANGELL, JON E	

ART UNIT	PAPER NUMBER
1635	

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10/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/069,305	MACDONALD ET AL.	
	Examiner	Art Unit	
	J. E. Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-30* is/are rejected.

7)☒ Claim(s) *31 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Action is in response to the communication filed on 7/31/08, which has been entered.

1. Applicant's arguments are addressed on a per section basis. The text of those sections of Title 35, U.S. Code not included in this Action can be found in a prior Office Action. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims and/or applicant's arguments.

Claims 27-32 are currently pending and are examined herein.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 27-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the claimed method wherein the VEE-specific antibody is administered subsequent to VEE administration and infection, does not reasonably provide enablement for the claimed method wherein the antibody and VEE are administered concurrently. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ2d 1400 (CA FC 1988).

Wands states on page 1404,

> "Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in Ex parte Forman. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims."

The nature of the invention

The claims are drawn to a method of administering a VEE and a VEE-specific antibody to increase the infectivity of the VEE. Thus, the invention is in a class of invention, biotechnology, which the CAFC has characterized as "the unpredictable arts such as chemistry and biology." Mycogen Plant Sci., lnc. v. Monsanto Co., 243 F.3d 1316, 1330 (Fed. Cir. 2001).

The breadth of the claims

The claims are broad in the sense the they embrace administration of the VEE and the antibody together or separately. It is noted that claims 31 and 32 indicate that the VEE and antibody are administered concurrently and in a single formulation.

The unpredictability of the art and the state of the prior art

The prior art teaches that ADE was a known phenomena wherein an antibody specific for a virus would increase the infectivity of the virus (e.g., see Gould et al.). However, the prior art specifically teaches that ADE was only observed when the antibody was administered subsequent to administration of the virus. Specifically, Gould teaches "Enhancement of virulence could be induced… if the virus were allowed to establish a productive infection in the mouse brain before the antibody was administered." (see abstract; also see pages 1606-1608).

Working Examples and Guidance in the Specification

The specification does not appear to disclose a working example were VEE and VEE-E1 or E2-specific monoclonal antibody was administered concurrently. Example 6 discloses that mice were infected with virus elements 3 weeks prior to administration of the monoclonal antibody.

Quantity of Experimentation

Considering the teaching of the prior art and the limited working examples presented, further experimentation would be required in order to fully enable the claimed invention.

Level of the skill in the art

The level of the skill in the art is deemed to be high.

Conclusion

Considering the nature of the invention, the breadth of the claims, the unpredictable nature of the invention as recognized in the prior art, the limited amount of working examples and guidance provided, and the high degree of skill required to practice the invention, it is concluded that the specification does not provide an enabling disclosure for the instant claims. Therefore, additional experimentation is required before one of skill in the art could make and use the claimed invention. The amount of additional experimentation required to perform the broadly claimed invention is undue.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/32733 (Johnston et al., previously of record) in view of Gould et al. (J. Gen. Virol., 1989; Vol. 70, pages 1605-1608).

Johnston et al. teach a method wherein an VEE virus which encodes and expresses a heterologous immunogen is administered to a subject as a vaccine to protect the subject against disease wherein the subject can be a human (e.g. see abstract; page 2, lines 17-30; page 6 line 30 through page 7, line 25).

Johnston et al. do not teach to administer an antibody that specifically binds to the E1 glycoprotein of the VEE along with the VEE.

Gould teaches antibody dependent enhancement of Yellow Fever (YF) and Japanese Encephalitis virus (JEV) neurovirulence when monoclonal antibodies specific for E glycoprotein of the infecting virus is administered to a subject 3 days after administration of the virus (e.g., see abstract, Tables 1-3, etc.).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Johnston et al. and Gould et al. to create a method of using E1 glycoprotein specific antibodies with an VEE that comprises a heterologous sequence, wherein the antibody is administered subsequent to administration of the VEE in order enhance the infectivity of the VEE in a subject, including to a human with a reasonable expectation of success.

The motivation to combine the references to create claimed invention and is provided by Gould who teaches that administration of E-glycoprotein monoclonal antibodies 3 days after

administration of YF or JEV enhance the infectivity of the virus. Furthermore, the fact that the antibodies enhanced infectivity of the YF and JEV virus in mice demonstrates a reasonable expectation of success that infectivity of the Encephalitis virus taught by Johnston et al. could be enhanced in a subject, including a human, without causing significant pathology.

Response to Arguments

2. Applicant's arguments with respect to the rejection(s) of the claim(s) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made for the reasons indicated herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. E. Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Monday-Thursday 8:00 a.m.-6:00 p.m. .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Douglas Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. E. Angell/
Primary Examiner, Art Unit 1635